

REMARKS/ARGUMENTS

Claim Rejections

The present application includes pending claims 1-8, 11-19, 22-30, 33 and 36-50, all of which have been rejected. Claims 1-33 and 36-50 have been amended. Claims 34 and 35 have been cancelled. The Applicant respectfully submits that the claims define patentable subject matter.

Initially, the Applicant notes that a goal of patent examination is to provide a prompt and complete examination of a patent application:

It is essential that patent applicants obtain a prompt yet complete examination of their applications. Under the principles of compact prosecution, each claim should be reviewed for compliance with every statutory requirement for patentability in the *initial review* of the application, even if one or more claims are found to be deficient with respect to some statutory requirement. Thus, Office personnel *should* state *all* reasons and bases for rejecting claims in the *first* Office action. Deficiencies should be explained clearly, particularly when they serve as a basis for a rejection. Whenever practicable, Office personnel should indicate how rejections may be overcome and how problems may be resolved. A failure to follow this approach can lead to unnecessary delays in the prosecution of the application.

Manual of Patent Examining Procedure (MPEP) § 2106(II).

As such, the Applicant assumes, based on the goals of patent examination noted above, that the present Office Action has set forth "all reasons and bases" for rejecting the claims.

The claims 1, 5-6, 12, 16-17, 23, 27-28, 36-50 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Menich et al. (US Patent 4,704,734 hereinafter, Menich) in view of Iguchi et al. (U.S. Patent 6,839,550, hereinafter Iguchi) and Matsui et al. (U.S. Patent 6,907,094, hereinafter Matsui). Claims 2-3, 13-14 and 24-25 have been rejected under 35 U.S.C. § 103(a) as being as being unpatentable over Menich, Iguchi in view of Matsui and further in view of Xu (U.S. Patent Application 2004/0203,550, hereinafter Xu). Claims 4, 15 and 26 have been rejected under 35

U.S.C. § 103(a) as being as being unpatentable over Menich in view of Iguchi, Matsui, Xu and further in view of Akerberg (U.S. Patent 6,553,078, hereinafter Akerberg). Claims 7, 18 and 29 have been rejected under 35 U.S.C. § 103(a) as being as being unpatentable over Menich in view of Iguchi, Matsui and further in view of Lyons et al. (U.S. Patent Application 2005/0095,987, hereinafter Lyons). Claims 8, 19 and 30 have been rejected under 35 U.S.C. § 103(a) as being as being unpatentable over Menich in view of Iguchi, Matsui and further in view of Rozanski (U.S. Patent 5,530,926, hereinafter Rozanski). Claims 11, 22 and 33 have been rejected under 35 U.S.C. § 103(a) as being as being unpatentable over Menich in view of Iguchi, Matsui and further in view of Banister (U.S. Patent 6,456,647, hereinafter Banister). The Applicant respectfully traverses these rejections and requests reconsideration of the claims in view of the following remarks.

Claim Rejections under 35 U.S.C. § 103(a)

Rejection of claims 1, 5-6, 12, 16-17, 23, 27-28, 36-50 under 35 U.S.C. § 103(a)

The Office Action asserts that the claims 1, 5-6, 12, 16-17, 23, 27-28, 36-50 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Menich in view of Iguchi and Matsui. Claims 1, 12, 23, 36, 41 and 46 are independent claims that have been amended. The amended independent claims 1, 12 and 23 comprise limitations recited in previously presented dependent claims 37, 42 and 47 respectively. The amended independent claims 36, 41 and 46 comprise limitations recited in previously presented independent claims 1 and 37, 12 and 42, and 19 and 47 respectively.

Rejection of claims 1, 12 and 23

The Applicant first turns to the rejection of independent claims 1, 12 and 23 as being unpatentable over Menich in view of Iguchi and Matsui under 35 U.S.C. § 103(a). The combination of Menich, Iguchi and Matsui does not teach "determining a selection index value for each one of said portion of said plurality of antennas based on the number of instances that said each one of said portion of said plurality of antennas is

selected as said receiving antenna over a determined number of said received plurality of frames” and “selecting one or more candidate starting antennas by comparing each of said plurality of selection index values to a majority polling threshold value” as is recited in the amended independent claims 1 and 12.

The Examiner concedes in the Office Action that “Menich fails to teach the selecting a starting antenna using the majority polling scheme.” See Office Action, page 3. The Examiner then asserts in the Office Action “Iguchi the selecting (sic) a starting antenna by using the majority polling scheme” See Office Action, page 3. For support of this assertion, the Examiner relies on Iguchi Fig. 5, col. 5, lines 17-44 and col. 2, lines 45-48. See Office Action, page 3. The Examiner does not assert in the Office Action that Matsui teaches selecting a starting antenna by using a majority polling scheme.

Iguchi teaches “it is also possible to receive signals for a plurality of times using the same antenna PAIR, and make a majority judgment for the number of times of receiving by the antenna pair” (Iguchi, col. 5, lines 10-13). Iguchi then proceeds to explain that the majority judgment is used to select an antenna pair. However, only one of the antennas in the antenna pair is selected “by majority decision”, the other antenna is selected based on its proximity to the antenna, which was selected by the majority decision (Iguchi, FIG. 5). For a given index value, k_{current} , the antennas identified by index values k_{current} and $k_{\text{current}}+1$ are selected (Iguchi, FIG.5, step S11). This pair of antennas is identified as PAIR(k_{current}). Based on the value of the signal ANTSEL signals are selected received via antenna k_{current} or antenna $k_{\text{current}}+1$.

Iguchi teaches that “ANTSEL is monitored for a plurality of receiving operations, and it is determined which antenna has been selected by majority decision from the results” (Iguchi, col. 5, lines 24-26). When antenna k_{current} is selected by the majority decision, a new index value $k_{\text{new}} = k_{\text{current}} - 1$ is computed (Iguchi, FIG. 5, step S13). Based on this new index value and antenna pair PAIR(k_{new}) is selected. The antenna pair PAIR(k_{new}) consists of antennas $k_{\text{current}} - 1$ and k_{current} (Iguchi, FIG. 5, step S15). Signals are then received for a plurality of times using the antenna pair PAIR(k_{new}) and

the process as described above is repeated (Iguchi, col. 5, lines 38-39).

However, among the antennas in antenna pair PAIR(k_{new}): $k_{\text{current}}-1$ and k_{current} , only antenna k_{current} is selected based on the majority decision because the majority decision selected antenna k_{current} at the majority decision step (Iguchi, FIG. 5, step S12). By comparison, the antenna $k_{\text{current}}-1$ is selected based on its proximity to the selected antenna k_{current} (Iguchi, FIG. 5, step S15) once the new index value k_{new} is computed (Iguchi, FIG. 5, step S13).

The discussion above is substantially similar when antenna $k_{\text{current}}+1$ is the selected antenna by the majority decision (Iguchi, FIG. 5, step S12). When antenna $k_{\text{current}}+1$ is selected by the majority decision, the new index value $k_{\text{current}}+1$ is computed (Iguchi, FIG. 5, step S14). Based on this new index value, the antenna pair PAIR(k_{new}) consists of antennas $k_{\text{current}}+1$ and $k_{\text{current}}+2$. In this antenna pair PAIR(k_{new}) only antenna $k_{\text{current}}+1$ is selected by the majority decision while antenna $k_{\text{current}}+2$ is selected based on its proximity to antenna $k_{\text{current}}+1$.

Since Iguchi teaches selection of antenna pairs that include an antenna, which is not selected by a majority decision, the Applicant respectfully submits that the combination of Menich, Iguchi and Matsui does not teach “determining a selection index value for each one of said portion of said plurality of antennas based on the number of instances that said each one of said portion of said plurality of antennas is selected as said receiving antenna over a determined number of said received plurality of frames” and “selecting one or more candidate starting antennas by comparing each of said plurality of selection index values to a majority polling threshold value” as is recited in the amended independent claims 1 and 12.

The Examiner also concedes in the Office Action that “Menich, Iguchi fail to teach the determined at determined (sic) least one starting antenna based on the over a determined number of said received plurality of frames.” See Office Action, page 11. The Examiner then asserts “Matsui teach the determined at determined at least one starting antenna based on the over a determined number of said received plurality of frames...” See Office Action, page 11. For support of this assertion, the Examiner

relies on Matsui col. 4, lines 3-27. The Applicant respectfully disagrees with the assertions set forth in the Office Action for the following reasons. The Applicant supports this position based on the teachings of Matsui col. 4, lines 3-27.

Matsui teaches:

The level comparison device 22 compares the threshold value held in the control portion 23 and the average value of the peak level output from the average value calculation portion 22, and when the average value of the peak level is lower than the threshold value, outputs a control signal to the antenna switching device 13 in order to carry out the switching of the antennas based on the frame timing signal (Matsui, col. 4, lines 20-27).

The Applicant respectfully submits that while Matsui teaches that a control signal is sent to the antenna switching device based on a comparison between the average value of the peak level and the threshold value, Matsui does not teach a time frame for when the control signal is sent to the antenna switching device 13. Thus, Matsui does not teach that the average value of the peak level becomes lower than the threshold value “over a determined number of said received plurality of frames,” as is recited in the amended independent claims 1 and 12. Matsui merely teaches that the average value of the peak level becomes lower than the threshold value when it happens, but Matsui does not teach or disclose when that might occur, if ever.

Consequently, Matsui does not teach that the control signal is sent to the antenna switching device 13 “over a determined number of said received plurality of frames,” as is recited in the amended independent claims 1 and 12. Matsui merely teaches that the control signal is sent to the antenna switching device when the average value of the peak level becomes lower than the threshold value without teaching or disclosing when that might occur, if ever.

Since Matsui does not teach a time frame for when a control signal is sent to the antenna switching device, the Applicant respectfully submits that the combination of Menich, Iguchi and Matsui does not teach “determining a selection index value for each one of said portion of said plurality of antennas based on the number of instances that said each one of said portion of said plurality of antennas is selected as said receiving

antenna over a determined number of said received plurality of frames” and “selecting one or more candidate starting antennas by comparing each of said plurality of selection index values to a majority polling threshold value” as is recited in the amended independent claims 1 and 12.

For at least the reasons stated above, the Applicant respectfully submits that the amended independent claims 1 and 12 are not unpatentable over Menich in view of Iguchi and Matsui under 35 U.S.C. § 103(a). The Applicant also submits that the amended independent claim 23 is not unpatentable over Menich in view of Iguchi and Matsui under 35 U.S.C. § 103(a) by similar rationale. The Applicant respectfully requests that the rejection of these claims be withdrawn. Additionally, since the dependent claims 2-11 depend from independent claim 1, dependent claims 13-22 depend from independent claim 12 and claims 24-33 depend on the independent claim 23, the Applicant respectfully requests that the rejection of these claims also be withdrawn. The Applicant respectfully reserves the right to argue additional reasons that support the allowability of claims 1-33 should that need arise in the future.

Rejection of claims 36, 41 and 46

The Applicant next turns to the rejection of independent claims 36, 41 and 46 as being unpatentable over Menich in view of Iguchi and Matsui under 35 U.S.C. § 103(a). The combination of Menich, Iguchi and Matsui does not teach “collecting information associated with a plurality of frames received by a portion of a plurality of antennas,” “computing a weighted average value over a determined number of said received plurality of frames for each of said portion of said plurality of antennas based on said collected information” and “selecting one or more candidate starting antennas from said portion of said plurality of antennas based on said plurality of computed weighted average values” as is recited in the amended independent claims 36 and 41.

The Examiner concedes in the Office Action that “Menich, Iguchi fail to teach the determining at least one starting antenna by using the weighted sum filtering scheme, wherein said weighted sum filtering scheme utilizes a plurality of different weighting

factors.” See Office Action, page 3. The Examiner then asserts in the Office Action “Matsui teaches the determining at least one starting antenna by using the weighted sum filtering scheme, wherein said weighted sum filtering scheme utilizes a plurality of different weighting factors.” See Office Action, pages 3-4. For support of these assertions, the Examiner relied on Matsui FIGs. 1, and 2, col. 3, line 36 to col. 4, line 2.

Matsui teaches “a coefficient having a phase of the same pattern as the spreading code of the sending side is retained in each multiplier 25-1, 25-2,..., 25-n” (Matsui, col. 3, lines 46-48). The digital matched filter 16 disclosed in Matsui is utilized in conjunction with direct sequence spread spectrum communications (Matsui, col. 3, lines 25-26 and 37-53). As such, the digital matched filter 16 receives chip data and utilizes the coefficients retained by the multipliers 25-1, 25-2,..., 25-n for dispreading the chip data to convert the chip data back to the original data generated at the transmitter.

Matsui also teaches that the digital matched filter 16 receives the chip data output from the A/D converter 15 (Matsui, col. 3, lines 37-38) and that the A/D converter 15 receives an analog baseband spread spectrum signal from the demodulator 14 (Matsui, col. 3, lines 30-36). Furthermore, Matsui teaches that “the demodulator 14 demodulates a wireless signal received via an antenna selected by the antenna switching device 13, and obtains an analog baseband spread spectrum signal” (Matsui, col. 3, lines 30-33, emphasis added). The A/D converter 15 converts the analog baseband spread spectrum signal to a digital representation comprising chip data and the digital matched filter 16 receives the chip data from the A/D converter 15. However, Matsui does not teach, disclose or suggest that the digital matched filter 16 and/or the coefficients retained by the multipliers 25-1, 25-2,...,25-n are utilized for “computing a weighted average value over a determined number of said received plurality of frames for each of said portion of said plurality of antennas based on said collected information,” as is recited in the amended independent claims 36 and 41 (emphasis added). Instead, Matsui merely teaches:

A digital matched filter 16 finds the correlation value of the chip data output from the A/D converter 15 and the spreading code that has the

same pattern as the sending side, and outputs the maximum correlation value at a frequency equivalent to the bit rate of the transmitted data (Matsui, col. 3, lines 37-41).

For at least the reasons stated above, the Applicant respectfully submits that the amended independent claims 36 and 41 are not unpatentable over Menich in view of Iguchi and Matsui under 35 U.S.C. § 103(a). The Applicant also submits that the amended independent claim 46 is not unpatentable over Menich in view of Iguchi and Matsui under 35 U.S.C. § 103(a) by similar rationale. The Applicant respectfully requests that the rejection of these claims be withdrawn. Additionally, since the dependent claims 37-40 depend from independent claim 36, dependent claims 42-45 depend from independent claim 41 and claims 47-50 depend on the independent claim 50, the Applicant respectfully requests that the rejection of these claims also be withdrawn. The Applicant respectfully reserves the right to argue additional reasons that support the allowability of claims 36-50 should that need arise in the future.

CONCLUSION

Based on at least the foregoing, Applicant believes that all claims 1-33 and 36-50 are in condition for allowance. If the Examiner disagrees, Applicant respectfully requests a phone interview, and requests that the Examiner telephone the undersigned at 312-775-8000.

Applicant respectfully reserves the right to argue additional reasons that support the allowability of claims 1-33 and 36-50 should that need arise in the future.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowability is courteously requested.

Respectfully submitted,

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